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CLAIMS

What is claimed is:

~~1.~~ A transgenic plant stably transformed with a cucumovirus 2b gene or active fragment thereof operatively linked to a promoter that is capable of effecting expression of said gene in said plant when said plant is infected with a pathogenic organism.

2. The transgenic plant of claim 1, wherein the cucumovirus 2b gene is one to which the nucleic acid of SEQ ID NO. 1 will hybridize under stringent conditions.

3. The transgenic plant of claim 1, wherein the cucumovirus 2b gene has substantially the sequence of SEQ ID NO. 1.

4. The transgenic plant of claim 1, wherein the plant is stably transformed with an active fragment of the cucumovirus 2b gene.

5. The transgenic plant of claim 4, wherein the fragment comprises a nucleic acid sequence encoding at least the 26 C-terminal amino acids of the protein encoded by the cucumovirus 2b gene.

6. The transgenic plant of claim 4, wherein the fragment comprises a nucleic acid sequence encoding at least the 45 C-terminal amino acids of the protein encoded by the cucumovirus 2b gene.

7. The transgenic plant of claim 4, wherein the fragment does not contain the amino acids encoding the 4 C-terminal amino acids of the protein encoded by the cucumovirus 2b gene.

8. The transgenic plant of claim 1, wherein expression of the 2b gene is controlled by a pathogen-inducible promoter.

9. The transgenic plant of claim 8, wherein the pathogen-inducible promoter is a PR protein gene promoter.

10. A method for rendering a plant resistant to disease caused by an infectious pathogenic agent, which comprises stably transforming the plant with a cucumovirus 2b gene or active fragment thereof operatively linked to a promoter that is capable of effecting expression of said gene in said plant when said plant is infected with a pathogenic organism.

11. The method of claim 10, wherein the cucumovirus 2b gene is one to which the nucleic acid of SEQ ID NO. 1 will hybridize under stringent conditions.

12. The method of claim 10, wherein the cucumovirus 2b gene has substantially the sequence of SEQ ID NO. 1.

13. The method of claim 10, wherein the plant is stably transformed with an active fragment of the cucumovirus 2b gene.

14. The method of claim 13, wherein the fragment comprises a nucleic acid sequence encoding at least the 26 C-terminal amino acids of the protein encoded by the cucumovirus 2b gene.

15. The method of claim 13, wherein the fragment comprises a nucleic acid sequence encoding at least the 45 C-terminal amino acids of the protein encoded by the cucumovirus 2b gene.

16. The method of claim 13, wherein the fragment does not contain the amino acids encoding the 4 C-terminal amino acids of the protein encoded by the cucumovirus 2b gene.

17. The method of claim 10, wherein expression of the 2b gene is controlled by a pathogen-inducible promoter.

18. A seed of the transgenic plant of claim 1, 2, 3, 4, 5, 6, 7, 8 or 9.

19. A propagating part of the transgenic plant of claim 1, 2, 3, 4, 5, 6, 7, 8 or 9.

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20. The transgenic plant of claim 1, which is corn, wheat, rice, millet, oat, barley, sorghum, sunflower, sweet potato, alfalfa, sugar beet, brassica species, tomato, pepper, soybean, tobacco, melon, squash, potato, peanut, pea, cotton or cacao.

21. An expression vector comprising a cucumovirus 2b gene or active fragment thereof operably linked to a plant-active promoter.

22. The expression vector of claim 21, wherein expression of cucumovirus 2b gene or active fragment thereof is controlled by a pathogen-inducible promoter.

23. The expression vector of claim 22, wherein the pathogen-inducible promoter is a PR protein gene promoter.

24. A transgenic plant stably transformed with a two-domain Avr gene having an inactive cell death domain, operatively linked to a promoter that is capable of effecting expression of said gene in said plant when said plant is infected with a pathogenic organism.

25. The transgenic plant of claim 24 wherein the Avr gene is derived from the cucumovirus 2b gene.

26. The transgenic plant of claim 25 wherein the Avr gene is a chimera of the resistance domain of the Tav2b gene and the cell death domain of the Cmv2b gene.

27. A method for rendering a plant resistant to disease caused by an infectious pathogenic agent, which comprises stably transforming the plant with a two-domain Avr gene having an inactive cell death domain, operatively linked to a promoter that is capable of effecting expression of said gene in said plant when said plant is infected with a pathogenic organism.

28. The method of claim 27 wherein the Avr gene is derived from the cucumovirus 2b gene.

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29. The method of claim 27 wherein the Avr gene is a chimera of the resistance domain of the Tav2b gene and the cell death domain of the Cmv2b gene.

~~30~~. An expression vector comprising an Avr gene having an inactive cell death domain operably linked to a plant-active promoter.

31. The expression vector of claim 30 wherein the Avr gene is derived from the cucumovirus 2b gene.

32. The expression vector of claim 31 wherein the Avr gene is a chimera of the reistance domain fo the Tav2b gene and the cell death domain of the Cmv2b gene.

33. The expression vector of claim 30, 31 or 32, wherein expression of the Avr gene is controlled by a pathogen-inducible promoter.

34. The expression vector of claim 33, wherein the pathogen-inducible promoter is a PR protein gene promoter.

35. A seed of the transgenic plant of claim 24, 25 or 26.

36. A propagating part of the transgenic plant of claim 24, 25 or 26.

37. The transgenic plant of claim 24, which is corn, wheat, rice, millet, oat, barley, sorghum, sunflower, sweet potato, alfalfa, sugar beet, brassica species, tomato, pepper, soybean, tobacco, melon, squash, potato, peanut, pea, cotton or cacao.